



Conference Program

**The Puget Sound/
Georgia Basin Ecosystem:
Status, stressors and
the road to recovery**

February 12-14, 2001

**Meydenbauer Center
Bellevue, Washington**

CONFERENCE SPONSORS

Salish Sea Sponsor



**City of Tacoma
Environmental Services**

Puget Sound Sponsors



WASHINGTON STATE DEPARTMENT OF
Natural Resources

Hood Canal Sponsors



NMFS Northwest
Fisheries Science Center



FISH and
WILDLIFE



King County
Department of Natural Resources



BOEING

Inlet Sponsors

City of Everett

City of Seattle

Washington State Department of Health

Fraser Basin Council

Taylor United

Washington Sea Grant Program

Bay and Harbor Sponsors

Association of Washington Cities

Battelle Marine Research

British Columbia Ministry of Environment, Land and Parks

City of Bellevue

City of Olympia

Clean Sound Cooperative

Environment Canada

Fisher Companies, Inc.

Golder Associates

Interagency Committee for Outdoor Recreation

Jones and Stokes Associates, Inc.

Marine Construction & Design

Natural Resource Conservation Service

NW Straits Marine Conservation Initiative

Pentec Environmental, Division of Hart Crowser

Pierce County

Office of Community Development

Olympic Coast National Marine Sanctuary

Shapiro and Associates, Inc.

Society of Environmental Toxicology & Chemistry

Washington State Parks & Recreation Commission

Washington Public Ports Association

Washington State Association of Counties

Whatcom County

WELCOME

Welcome to the fifth Puget Sound Research Conference! This booklet is your guide to three days of what we hope will be informative and engaging programs. In this booklet you will find information on the oral presentations included in each concurrent session, a description of the poster presentations and a quick-reference grid of the conference agenda.

Please stop by the Conference Information Center in the center hall lobby if you have questions.

Enjoy the conference!

KEYNOTE PRESENTERS



KEYNOTE PRESENTER FOR LUNCHEON ON FEBRUARY 13

Alan Durning is the founder and executive director of Northwest Environment Watch (NEW), a non-profit research and publishing organization with a mission to promote an environmentally sound economy and way of life in the Pacific Northwest. Before settling back down in his hometown of Seattle, Mr. Durning was a senior researcher for Worldwatch Institute in Washington, D.C., which served as a model for NEW. He has authored and co-authored numerous books and papers, including "How Much is Enough? The Consumer Society and the Future of the Earth."



KEYNOTE PRESENTER FOR LUNCHEON ON FEBRUARY 14

William D. Ruckelshaus was the first and fifth administrator of the United States Environmental Protection Agency and helped pass the Clean Air Act in 1970. In 1997-98 he served as U.S. envoy in implementing the Pacific Salmon Treaty. He now serves as chairman of Washington State's Salmon Recovery Funding Board. A former acting director of the FBI and a U.S. deputy attorney general, Mr. Ruckelshaus now serves as director and board member of several corporations. He is currently a principal for Madrona Investment Group, LLC, a Seattle-based investment firm.

SPECIAL NEEDS

If you have special accommodation needs or need this document in an alternative format, please contact the Conference Information Center or the Puget Sound Water Quality Action Team's ADA representative at (360) 407-7300 or TDD number 1(800) 833-6388.

SPONSORS

OVERVIEW

MONDAY

TUESDAY

WEDNESDAY

POSTERS

GENERAL INFORMATION

CONFERENCE LOCATION

The location for all general sessions, lunches and receptions will be on the first floor level of the Meydenbauer Center. All breakouts will be on the fourth floor level. Exact room locations are identified in the daily program and program-at-a-glance pages of this booklet.

CONFERENCE CHECK-IN & INFORMATION CENTER

Location: Center Hall Lobby
Hours: Monday, February 12 - 8:00 a.m. - 5:30 p.m.
Tuesday, February 13 - 7:30 a.m. - 6:00 p.m.
Wednesday, February 14 - 7:30 a.m. - 2:00 p.m.

NAME BADGES

Your name badge is admission to all the conference activities and meal functions. Please wear it at all times. There will be a box at the Conference Information Center to recycle your name badge holder upon leaving the conference.

RIBBONS

Name badge ribbons are color-coded to help you identify people who can answer any questions you may have.
White = Advisory Committee Members
Blue = Staff

MESSAGES

Messages may be left at the Conference Information Center. The phone number is (425) 450-3701. Please check the message board regularly.

CELLULAR PHONES/PAGERS

Please turn your cellular phones and pagers off during sessions as a courtesy to the speakers and other participants.

SPEAKER PREP ROOM

Room 401 will be available throughout the conference for speakers to check their presentations.

CONFERENCE EVALUATIONS

Please complete the Conference Evaluation Form in your packet and return it to the Conference Information Center. You may also mail or fax your comments to the address or fax number identified on the form. Your opinion is important in planning future conferences.

CONFERENCE PROCEEDINGS

A CD-ROM containing the Proceedings of the 2001 Puget Sound Research Conference will be sent to all conference attendees before the end of the year. Additional copies of the CD-ROM will be available for purchase from the Puget Sound Water Quality Action Team for a charge of \$5.

Until the proceedings are available, please refer to the abstract book included in your conference packet for abstracts of conference presentations and biographical sketches of presenters.

CONFERENCE ADVISORY COMMITTEE

Rick Anderson

League of Conservation Voters

George Blomberg

Port of Seattle

Ed Bowlby

Olympic Coast National Marine Sanctuary

John Carleton

Washington State Department of Fish and Wildlife

Robert Chandler

City of Seattle, Seattle Public Utilities

Dan Cheney

Pacific Shellfish Institute

Andrea Copping

Washington Sea Grant Program,
University of Washington

Darla Inglis

City of Seattle, Seattle Public Utilities

Duane Fagergren

Puget Sound Water Quality Action Team

Jerry Ficklin

Simpson Timber Company

Colin Gray

Environment Canada

Tom Mumford

Washington State Department of Natural Resources

Jan Newton

Washington State Department of Ecology

Dave Peeler

Washington State Department of Ecology

John Pringle

Fisheries and Oceans Canada

Michael Rylko

U.S. Environmental Protection Agency

Randy Shuman

King County Department of Natural Resources

John Stein

NFMS, Northwest Fisheries Science Center

Les Swain

British Columbia Ministry of Environment,
Land & Parks

Jennifer Tebaldi

Washington State Department of Health

Sheri Tonn

Pacific Lutheran University

Richard Wojt

Jefferson County Commissioner

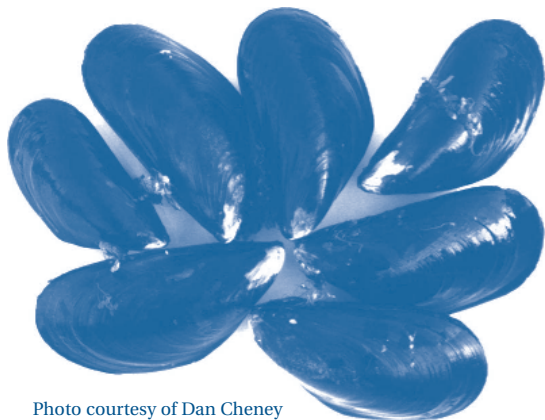


Photo courtesy of Dan Cheney

SPONSORS

OVERVIEW

MONDAY

TUESDAY

WEDNESDAY

POSTERS

Monday, February 12

8 a.m.-5:30 p.m.

Conference Check-in
Center Hall Foyer

9:30 to Noon

Plenary Presentations and Panel
Center Hall B

The Challenges Facing Puget Sound and Georgia Basin Scientists
A series of presentations, followed by a panel discussion, addressing the challenges confronting scientists and resource managers as we work on environmental and resource management issues in Puget Sound and the Georgia Basin.

Presenters: Philip Mote, University of Washington
Richard Beamish, Fisheries and Oceans Canada
Elliott Norse, Marine Conservation Biology Institute

Panelists: John Dodge, The Olympian
Jacques White, People for Puget Sound
Kirk Anderson, Fisher Companies, Inc.

Noon to 1:30 p.m.

Lunch and Poster Viewing
Center Hall A

1:30 to 3:20 p.m.

SESSION 1

1A: Puget Sound Regional Synthesis Model
Room 407-409

Miles G. Logsdon, University of Washington
A Seamless Digital Physiography and Data Model for a Regional Coupled Model

Ken Westrick, University of Washington
A Hydrometeorology Model of Puget Sound: Water from the Atmosphere Across the Land Surface

Mitsuhiro Kawase, University of Washington
Ocean Dynamics: Water Masses and Ecosystem Properties in Puget Sound

Richard Palmer, University of Washington
Water Resources Allocation Model for Regional Decisions

Paul Waddell, University of Washington
The Human Dimension: Coupling Projected Changes in Regional Demography to the Biophysical World

1B: Intertidal and Nearshore Ecology
Room 405-406

Carl Shoch, Coastal and Ocean Resources
Puget Sound Intertidal Biodiversity: Scales of Variability for Invertebrate and Algal Communities on Gravel Beaches

Glen Jamieson, Fisheries and Oceans Canada
Community Structure in Goose Barnacle and Sea Mussel Beds Off the West Coast of Vancouver Island, British Columbia

Carolyn Jenkins, University of Washington
Watch Your Step! Impacts of Trampling on a Rocky Shoreline of San Juan Island, Washington

Christopher Harley, University of Washington
The Roles of Vertical and Horizontal Gradients of Abiotic Stress in Determining Regional Intertidal Diversity Patterns in the Northwest Straits

**Jim Brennan, King County
Department of Natural Resources**
Marine Riparian: Assessment of Riparian Functions in Marine Ecosystems

1C: Puget Sound/Georgia Basin Water Quality

Room 402-403

Mark Warner, University of Washington

Recent Studies of the Overturning Circulation in Hood Canal

Skip Albertson, Washington State**Department of Ecology**

Investigation of the Mean Flow in a Complex Multi-connected Estuary: South Puget Sound

John Dunne, University of Washington

The Oceanic Remote Chemical/Optical Analyzer

(ORCA): An Autonomous Profiler for Puget Sound

Mindy Roberts, Washington State**Department of Ecology**

Estimating Loads of Nutrients, Bacteria, DO and TSS from 71 Watersheds Tributary to South Puget Sound

Tim Determan, Washington State**Department of Health**

Status & Trends of Fecal Coliform Bacteria in Shellfish Growing Areas in Puget Sound & the Straits of Juan de Fuca and Georgia

3:20 to 3:45 p.m. Break
4th Floor Foyer

3:45 to 5:15 pm SESSION 2

2A: Fish Ecology and Biology

Room 407-409

Bill Mavros, King County**Department of Natural Resources**

Nearshore Beach Seining for Juvenile Chinook and Other Salmonids in King County Intertidal and Shallow Subtidal Zones

Charles Eaton, Bio-Marine Enterprises

Trawl Metrics for Bottomfish and Epibenthic Marine Invertebrates as a Measure of Environmental Stress and Recovery

Steven Fradkin, National Park Service,**Olympic National Park**

Spawning Season and Habitat of Olympic Outer Coast Surf Smelt

Dan Penttila, Washington State**Department of Fish and Wildlife**

Effects of Shading Upland Vegetation on Egg Survival for Summer-spawning Surf Smelt on Upper Intertidal Beaches in Puget Sound, Washington

2B: Toxic Contaminants in the Puget Sound/Georgia Basin

Room 405-406

Colin Gray, Environment Canada

The Fraser River Is Getting Cleaner: Will It Continue To Improve?

Michael Salazar, Applied BiomonitoringUsing Caged Mussels to Characterize Exposure from Point and Nonpoint Stressors in the Cherry Point Reach: The Value of *In-situ* Monitoring**Sandie O'Neill, Washington State****Department of Fish and Wildlife**

Toxic Contaminants in Pacific Herring from Puget Sound Washington

Jim West, Washington State**Department of Fish and Wildlife**

Implications for Reproductive Health in Rockfish from Puget Sound Exposed to Polychlorinated Biphenyls

2C: Climate-related Effects
Room 402-403

Jan Newton, Washington State
Department of Ecology
Effects of Climate Variability on Marine Water Properties
and Phytoplankton Production

Doug Canning, Washington State
Department of Ecology
Climate Variability, Climate Change, and Sea Level Rise
in Puget Sound: Possibilities for the Future

Ronald Thom, Battelle Marine Sciences Laboratory
The Influence of Climate Variation and Change on
Structure and Processes in Nearshore Vegetated
Communities of Puget Sound and Other Northwest
Estuaries

Fred Nichols, U.S. Geological Survey
Interdecadal Change in Deep Puget Sound Benthos

Robert Francis, University of Washington
Puget Sound Climate and Marine Biota: What Have We
Learned?

5:15 to 7:30 p.m. Reception and Poster Viewing
Center Hall A

Tuesday, February 13

7:30 a.m. to 6:00 p.m. **Conference Check-in**
Center Hall Foyer

7:30 to 8:30 a.m. **Continental Breakfast and
Poster Viewing**
Center Hall A

8:30 to 10 a.m. **SESSION 3**

3A: Characterizing and Protecting Nearshore Habitats
Room 407-409

**Don Howes, British Columbia Land-Use
Coordination Office**
BC ShoreZone Inventory and Classification System - A
Systematic Approach to Characterize Coastal Habitats in
the Pacific Northwest

**Helen Berry, Washington State
Department of Natural Resources**
Spatial Patterns in Shoreline Habitats: Results from the
ShoreZone Inventory of Washington State

**Amy Sewell, Washington State
Department of Natural Resources**
Eelgrass Monitoring in Puget Sound: Overview of the
Submerged Vegetation Monitoring Project

**Kurt Fresh, Washington State
Department of Fish and Wildlife**
Mitigating Impacts of Overwater Floats on Eelgrass
(*Zostera marina*) in Puget Sound, Washington

3B: Marine Mammals and Birds
Room 405-406

**Patrick Gearin, NOAA,
National Marine Fisheries Service**
Marine Mammal Research Along the Northern Coast of
Washington

Glenn VanBlaricom, University of Washington
The Impending Sea Otter Crisis in Washington:
Ecological Effects and Political Implications

**Chris Thompson, Washington State
Department of Fish and Wildlife**
Breeding Phenology and Diet of Caspian Terns in
Southern Puget Sound, Washington

Donald Norman, Norman Wildlife Consulting
Heron and Eagles and Crows, Oh My! Causes of
Abandonments at Great Blue Heron Colonies

3C: Watershed and Estuarine Assessment and Planning
Room 402-403

**Richard Gersib, Washington State
Department of Ecology**
The Need for Process-Driven, Watershed-Based Wetland
Restoration

Jon Houghton, Pentec Environmental
The Snohomish Estuary Salmon Overlay - A Tool for
Regional Habitat Restoration Planning

Tom Dean, People for Puget Sound
A New Method for Identifying and Prioritizing Areas for
Habitat Restoration in Puget Sound's Rural Estuaries

Greg Williams, Battelle Marine Sciences Laboratory
A Comprehensive Assessment of the Central Puget
Sound (King County) Nearshore Ecosystem: Historic
Changes, Data Gaps, and Pending Threats

SPONSORS

OVERVIEW

MONDAY

TUESDAY

WEDNESDAY

POSTERS

3D: Effects and Ecological Interactions of Cultured Bivalves
Room 404

Mark Luckenbach, School of Marine Science, Virginia Institute of Marine Science
Ecological Interactions Associated with Cultured and Restored Bivalve Populations in Chesapeake Bay

Kenn Brooks, Aquatic Environmental Science Laboratory
Environmental Response to the Intensive Cultivation of Fish and Shellfish in the Pacific Northwest

Brett R. Dumbauld, Washington State Department of Fish and Wildlife
The Role of Oyster Aquaculture as Habitat in West Coast Estuaries: A Review

Jonathan P. Davis, Taylor Shellfish Farms
Shellfish Culture in the Estuary: Are Growing Shellfish and Estuarine Stewardship Compatible?

10 to 10:30 a.m. Break
4th Floor Foyer

10:30 a.m. to Noon SESSION 4

4A: Marine Protected Areas
Room 407-409

Wayne Palsson, Washington State Department of Fish and Wildlife
Criteria for Establishing and Monitoring No-take Refuges for Rockfishes and Other Rocky Reef Fishes in Puget Sound

Phil Bloch, People for Puget Sound
The Eye of Poseidon: Collecting, Organizing and Modeling with Geospatial Resource and Habitat Data to Help Identify Targets for Marine Protected Area Designation

Terrie Klinger, University of Washington
Using Oceanographic Linkages to Guide Marine Protected Area Network Design

Kirby Johnson, Snohomish County Marine Resources Committee
Census of Lingcod Nesting Activity in the Edmonds Underwater Park

4B: Shoreline Modifications
Room 405-406

Steve Morrison, Thurston Regional Planning Council
Shoreline Armoring of Puget Sound -- A Habit We Just Can't Kick

Jim Johannessen, Coastal Geologic Services, Inc.
Soft Shore Protection as an Alternative to Bulkheads - Projects and Monitoring

Elliott Menashe, Greenbelt Consulting
"Bio-Structural" Erosion Control: Incorporating Vegetation in Engineering Designs

Hugh Shipman, Washington State Department of Ecology
Beach Nourishment of Puget Sound: A Review of Existing Projects and Potential Applications

4C: Contaminated Sediments
Room 402-403

Ed Long, National Oceanic & Atmospheric Administration
Spatial Extent of Sediment Contamination, Toxicity and Associated Biological Effects in Puget Sound

Kathy Godtfredsen, Windward Environmental LLC
Immunocompetence of Juvenile Chinook Salmon
Following Exposure to Dietary PCBs: Implications for
Regulatory Policy

Robert Zisette, Herrera Environmental Consultants
Evaluating the Effectiveness of Capping Mercury
Contaminated Sediments at Eagle Harbor, Washington

**Tom Gries, Washington State
Department of Ecology**
Siting a Confined Disposal and Treatment Facility Within
a Regional Framework for Managing Contaminated
Sediment: Lessons Learned and Remaining Challenges

4D: Natural Hazards
Room 404

**Shunichi Koshimura, National Oceanic &
Atmospheric Administration**
Tsunamis in the Puget Sound Region, a New Program

**Patrick Pringle, Washington State
Department of Natural Resources**
Post-glacial Influence of Lahars and Laharic Floods on
the Landscape of the Puget Lowland, Washington -- A
Review of Selected Publications and Recent Discoveries

**Tim Walsh, Washington State
Department of Natural Resources**
Influence of Intercepted Landslides on Nearshore Habitat

Craig Weaver, U.S. Geological Survey
Earthquakes in Puget Sound: How Wild a Ride?

**Noon to 1:30 p.m. Lunch and Keynote
Presentation
Center Hall A**

Salmon, Sprawl and Aikido Politics
Alan Durning will give a presentation on issues facing the
Puget Sound and Georgia Basin ecosystem and recommenda-
tions for how they can be addressed.

1:30 to 3:20 p.m. SESSION 5

5A: Changes Over Time in the Puget Sound/Georgia Basin
Room 407-409

Thomas Quinn, University of Washington
Temporal Changes in Body Length, Weight and
Fecundity of Coho Salmon from a Research Hatchery in
Puget Sound

**Wayne Palsson, Washington State
Department of Fish and Wildlife**
Survey-based Stock Trends for Puget Sound
Groundfishes: Monitoring the Road to Recovery

**Helen Berry, Washington State
Department of Natural Resources**
Temporal Trends in the Areal Extent of Canopy-forming
Kelp Beds Along the Strait of Juan de Fuca and
Washington's Outer Coast

**Alan Mearns, National Oceanic &
Atmospheric Administration**
Long-term Contaminant Trends and Patterns in Puget
Sound, the Straits of Juan de Fuca and the Pacific Coast:
Implications for Monitoring and Management

**Dave Preikshot, University of British
Columbia Fisheries Centre**
A Dynamic Ecosystem Model of South Puget Sound

- 5B: Ecological Modeling and Assessment

Room 405-406

Stephen Romaine, Institute of Ocean Sciences,
Fisheries and Oceans Canada

Hake and Euphausiid Monitoring in the Strait of Georgia
Using Hydroacoustics
- Carol Piening, Washington State
Department of Natural Resources

Risk Assessment Needs for Land Management Decisions
at Cherry Point, Whatcom County, Washington
- Wayne Landis, Western Washington University

Regional Risk Assessment Predictions for the Decline and
Future Management of the Cherry Point Herring Stock
- Stephanie Sylvestre, Environment Canada

Expanding the Use of the Benthic Invertebrate
Monitoring Approach Developed for the Fraser River
Basin to Assess Streams in the Georgia Basin
- Mark Sekela, Environment Canada

Water Quality Assessment of Urban and Agricultural
Run-off Using a Mesocosm Approach in the Lower
Fraser River Valley

- 5C: Circulation, Currents and Water Properties

Room 402-403

Mitsuhiro Kawase, University of Washington

PRISM Semi-annual Oceanographic Survey of Puget
Sound: Overview and Water Mass Results

John Mickett, University of Washington

The Distribution and Mechanisms of Mixing in the Main
Basin of Puget Sound

Kathleen Edwards, University of Washington

Flow in the Strait of Juan de Fuca

Parker MacCready, University of Washington

Tidal Eddy Generation at Three Tree Point in Puget
Sound, Washington: Theory and Numerical Modeling

Andrew Chiodi, University of Washington

High Resolution Temperature and Salinity Profiles in
Possession Sound with an Autonomous Underwater
Vehicle
- 5D: Long-Term Science Plan for the Olympic Coast
Marine Sanctuary

Room 404

Panel discussion of a draft long-term science plan for the
Olympic Coast National Marine Sanctuary (OCNMS).
Panelists include OCNMS staff and managers (Ed Bowlby,
Carol Bernthal, George Galasso, Mary Sue Brancato and
Liam Antrim) and Carl Schoch, chair of the Sanctuary
Advisory Council's Research Advisory Committee.
- 3:20 to 3:45 p.m.

Break

4th Floor Foyer
- 3:45 to 5:15 p.m.

SESSION 6
- 6A: Fish Ecology and Biology

Room 407-409

Lyle Britt, University of Washington

Short Wavelength Vision in Larval Fishes: A Feeding Adaptation?

Eric Eisenhardt, University of Washington

A Marine Preserve Network in San Juan Channel: Is it
Working for Nearshore Rocky Reef Fish?
- ~Page 10~

**Robert Pacunski, Washington State
Department of Fish and Wildlife**
Micro- and Macro-habitat Relationships for Rockfish,
Lingcod and Other Rocky Reefs Fishes in Puget Sound

**Tony Parra, Washington State
Department of Fish and Wildlife**
Abundance, Mate and Site Fidelity of Wolf-eel in Puget
Sound, Washington

6B: Restoration Projects
Room 405-406

**Patricia Johnson, Washington State
Department of Ecology**
Washington State Wetland Mitigation Evaluation Study

David Low, U.S. Fish and Wildlife Service
A Monitoring Plan for Intertidal Habitat Restoration in
the Duwamish River Estuary

Colin Wagoner, Ridolfi Engineers, Inc.
Squally Beach: Challenges of Urban Restoration

6C: Spills
Room 402-403

**Dan Doty, Washington State
Department of Fish and Wildlife**
Injury, Restoration and Recovery of Fish and Wildlife
Resources Following the Olympic Pipeline Gasoline Spill
in Whatcom Creek, Bellingham, Washington

**Alan Mearns, National Oceanic and
Atmospheric Administration**
Dispersing Oil Spills in the Straits: Assessing Fisheries
and Environmental Tradeoffs

**Brent Moore, British Columbia Ministry of
Environment, Land and Parks**
Surface Microlayer Monitoring in Georgia Strait

Eric Olsson, University of Washington Sea Grant Program
Spill Prevention ... Knowing What To Do Isn't Enough

6D: Sixgill Shark
Room 404

John Rupp, Point Defiance Public Aquarium
Natural History of the Sixgill Shark

**Greg Bargmann, Washington State
Department of Fish and Wildlife**
An Overview of the Commercial Catch of Sixgill Sharks
in Washington Waters

Rick Harbo, Fisheries and Ocean Canada
A Review of British Columbia Landings, Regulations and
Assessments

Vincent Gallucci, University of Washington
Summary of Current Sixgill Shark Research Efforts by
Canadian and U.S. Investigators

5:15 to 7:30 p.m. **Reception and Poster Viewing
Center Hall A**

6:00 to 7:30 p.m. **Workshops and
Informal Discussions
4th Floor Meeting Rooms**

Monday, February 10

8:00 am	Conference Check-in until 5:30 pm (Center Hall Foyer)	
8:00 am	Poster Setup until 9:15 am (Center Hall A)	
9:30 am	Plenary Presentations: The Challenges Facing Puget Sound	
10:45 am	Coffee Break (Center Hall Foyer)	
11:00 am	Panel Discussion on the Science Challenges Facing Puget Sound	
Noon	Lunch, Introduction to Posters and Poster Viewing (Center Hall A)	
1:30 pm	1A: Puget Sound Regional Synthesis Model (PRISM) (Rm 407-409)	1B: Intertidal Ecology (Rm 405-406)
3:20 pm	Break (4th Floor Foyer)	
3:45 pm	2A: Fish Ecology and Biology (Rm 407-409)	2B: Toxic Contaminants in Puget Sound/Georgia Sound (Rm 405-406)
5:15 pm	Reception and Poster Viewing until 7:30 pm (Center Hall A)	

Tuesday, February 11

7:30 am	Conference Check-in until 6:00 pm (Center Hall Foyer)	
7:30 am	Continental Breakfast and Poster Viewing (Center Hall A)	
8:30 am	3A: Characterizing and Protecting Nearshore Habitats (Rm 407-409)	3B: Marine Mammals and Birds (Rm 405-406)
10:00 am.	Coffee Break (4th Floor Foyer)	
10:30 am	4A: Marine Protected Areas (Rm 407-409)	4B: Shoreline Modifications (Rm 405-406)
Noon	Lunch and Keynote Presentation – Alan Durning: Salmon and the Puget Sound	
1:30 pm	5A: Changes Over Time in the Puget Sound/Georgia Basin (Rm 407-409)	5B: Ecological Modeling and Assessment (Rm 405-406)
3:20 pm	Break (4th Floor Foyer)	
3:45 pm	6A: Fish Ecology and Biology (Rm 407-409)	6B: Restoration Projects (Rm 405-406)
5:15 pm	Reception and Poster Viewing until 7:30 pm (Center Hall A)	
6:00 pm	Informal Discussion: ShoreZone Inventory Data Set (Rm 407-409)	Toxics in the Puget Sound Food Web: Workshop Convened by Puget Sound People for Puget Sound (Rm 405-406)

Wednesday, February 12

7:30 am	Conference Check-in until Noon (Center Hall Foyer)	
7:30 am	Continental Breakfast and Poster Viewing (Center Hall A)	
8:30 am	7A: Ecosystem Science and Stewardship (Rm 407-409)	7B: Emerging Issues (Rm 405-406)
10:20 am	Coffee Break (4th Floor Foyer)	
10:45 am	8A: Non-indigenous Marine Species (Rm 407-409)	8B: Marine Protected Areas (Rm 405-406)
12:15 pm	Lunch and Keynote Presentation—William Ruckelshaus: Next Steps for Puget Sound	
2:15 pm	Informal Discussions and Poster Take Down (Center Hall A)	
3:15 pm	Conference Adjourns	

February 12

nd and the Georgia Basin Scientists (Center Hall B)	
t Sound and the Georgia Basin (Center Hall B)	
er Hall A)	
l and Nearshore 405-406)	1C: Puget Sound/Georgia Basin Water Quality (Rm 402-403)
taminants in the Puget a Basin (Rm 405-406) A)	2C: Climate-related Effects (Rm 402-403)

February 13

)	
3C: Watershed and Estuarine Assessment and Planning (Rm 402-403)	3D: Effects and Ecological Interactions of Cultured Bivalves (Rm 404)
4C: Contaminated Sediments (Rm 402-403)	4D: Natural Hazards (Rm 404)
n, Sprawl and Aikido Politics (Center Hall A)	
5C: Circulation, Currents and Water Properties (Rm 402-403)	5D: Long-term Science Plan for the Olympic Coast Marine Sanctuary (Rm 404)
6C: Spills (Rm 402-403)	6D: Sixgill Shark (Rm 404)
l A)	
Informal Discussion: to be determined 6) (Rm 402-403)	Informal Discussion: to be determined (Rm 404)

February 14

)	
7C: Marine Outfall Siting Study (Rm 402-403)	7D: Stormwater Problems and Solutions (Rm 404)
8C: Toxics in Marine Mammals (Rm 402-403)	8D: Harmful Algae (Rm 404)
eps in Working Toward Ecosystem Recovery and Sustainability (Center Hall A)	
l A)	

Wednesday, February 14

7:30 a.m. to Noon

Conference Check-in
Center Hall Foyer

7:30 to 8:30 a.m.

Continental Breakfast and
Poster Viewing
Center Hall A

8:30 to 10:20 a.m.

SESSION 7

- 7A: Ecosystem Science and Stewardship

Room 407-409

Todd Hass, University of Washington

Preaching to a New Choir: COASST and Citizen Science

Paul Schlenger, Anchor Environmental LLC

Targeting Habitat Conservation and Protection Efforts in
Puget Sound: Whatcom County Marine Resource
Committee's Approach

Jacques White, People for Puget Sound

The Rapid Shoreline Inventory: A New Partnership
Program for Collection of Detailed Habitat Data from
Puget Sound Shorelines by Volunteers

Brian Smiley, Fisheries and Oceans Canada

Gary Wood, Island County

Marine Resources Committee

The MRC: When Using a Bottom-up Approach; Look
What Can Bubble Up
- 7B: Emerging Issues

Room 405-406

Ronald Thom, Battelle Marine Sciences Laboratory

Sorting Out Cumulative Effects of Multiple Stressors on
Eelgrass Transplants in Puget Sound

Teresa Ryan, University of British Columbia

Fisheries Centre

Cultural Perspectives of Environmental Assessment in
Grays Harbor, Washington

Tracy Collier, National Oceanic and Atmospheric
Administration

Sublethal Effects of Contaminants on Fish in Puget
Sound: What Is Their Significance?

Scott Redman, Puget Sound Water Quality Action Team

What's Next for Puget Sound Science -- Issues Identified
Through the Ambient Monitoring of Puget Sound

Tom Mumford, Washington State

Department of Natural Resources

Connecting Our "Gut Feelings" to Science by Asking the
Right Questions
- 7C: Marine Outfall Siting Study

Room 402-403

Glenn Cannon, University of Washington

Circulation Variations in the Northern Main Basin of
Puget Sound

Bruce Nairn, King County

Department of Natural Resources

Comparison of Observational Circulation Patterns and
Numerical Model Predictions in Puget Sound,
Washington

Kari Sauers, Evans-Hamilton, Inc.

Determination of Surface Circulation Patterns in
Northern Puget Sound Using Drift Cards

Kara Nakata, Washington State**Department of Ecology**

Seasonal Patterns and Controlling Factors of Primary
Production in Puget Sound Central Basin and Possession
Sound

Dana Woodruff, Battelle Marine Sciences Laboratory

Nearshore Habitat Mapping in Puget Sound Using Side
Scan Sonar and Underwater Videography

7D: Stormwater Problems and Solutions

Room 404

Christopher May, University of Washington

A Proposed Strategy for Maintaining Ecological Integrity
in Urban Streams

David Hartley, King County**Department of Natural Resources**

Detecting Hydrologic Change in High Resource Streams

Sarah Morley, University of Washington and**Northwest Fisheries Science Center**

Influence of Land Cover Urbanization on the Biological
Condition of Puget Sound Lowland Streams

Christopher Konrad, U.S. Geological Survey

The Extent of Perennial Streams in the Puget Lowland

Darla Inglis, Seattle Public Utilities, City of Seattle

Returning Watershed Functions to the Urban
Landscape: Current Approaches Being Evaluated by the
City of Seattle

10:20 to 10:45 a.m.

Break

4th Floor Foyer

10:45 a.m. to 12:15 p.m.

SESSION 8

8A: Non-indigenous Marine Species

Room 407-409

Marjorie Wonham, University of Washington

Introduced Marine and Maritime Species of the Pacific
Northwest: Historical Pathways and Current Patterns

Sarah Dudas, University of British Columbia

Marine and Estuarine Non-indigenous Species in the
Strait of Georgia, British Columbia

Sally Hacker, Washington State University Vancouver

Patterns of Plant Species Abundance and Physical Conditions
in Marine Habitats Invaded by the Non-indigenous
Cordgrass, *Spartina anglica*, in Puget Sound, Washington

Tabitha Reeder, Washington State University Vancouver

The Control and Regrowth of the Non-indigenous English
Cordgrass, *Spartina anglica*, in Puget Sound, Washington

8B: Marine Protected Areas

Room 405-406

Marc Pakenham, Fisheries and Oceans Canada

Developing a Collaborative Process to Establish Marine
Protected Areas

Liam Antrim, Olympic Coast**National Marine Sanctuary**

Zoning to Protect Resources Within the Olympic Coast
National Marine Sanctuary

Richard Osborne, The Whale Museum
 Voluntary Marine Protected Areas and Adaptive Management in the San Juan Islands

David Fluharty, University of Washington
 Opportunism and Optimality: Strategies for Developing Marine Protected Area Management in Washington

8C: Toxics in Marine Mammals
 Room 402-403

Richard Addison, Institute of Ocean Sciences, Fisheries and Oceans Canada
 Organochlorine (OC) Compounds in British Columbia Marine Mammals—An Overview of Trends and Concerns

John Calambokidis, Cascadia Research
 Temporal Trends in Contaminants in Puget Sound Harbor Seals

Peter Ross, Institute of Ocean Sciences, Fisheries and Oceans Canada
 PCBs at the Top of the Food Chain: Geographical Variation in British Columbia and Washington Harbor Seals

Robert Grove, Oregon State University
 Organochlorine Contaminants in River Otter Collected from Puget Sound, Washington, 1996

8D: Harmful Algae
 Room 404

Frank Cox, Washington State Department of Health
 Department of Health's Biotoxin Monitoring Program

Vera Trainer, Northwest Fisheries Science Center, National Marine Fisheries Service
 Detection of Domoic Acid in the Lab and Field

Ian Whyte, Fisheries and Oceans Canada
Cochlodinium polykrikoides: A New Killer of Farmed Salmon in British Columbia

Anne Shaffer, Washington State Department of Fish and Wildlife
 Macroalgae Blooms and Impact to Nearshore Habitat and Resource in the Strait of Juan De Fuca

12:15 to 2:15 p.m.	Lunch and Keynote Presentation Center Hall A
---------------------------	--

Next Steps in Working Toward Ecosystem Recovery and Sustainability
 William Ruckelshaus will challenge conference attendees and the Puget Sound community to be creative and decisive as we work to protect and restore Puget Sound and the Georgia Basin ecosystem and natural resources.

2:15 to 3:15 p.m.	Informal Discussion and Poster Take Down Center Hall A
--------------------------	--

3:15 p.m.	Conference Adjourns
------------------	----------------------------

POSTER PRESENTATIONS

Group A: Ecological Modeling and Assessment

Greg Bargmann, Washington State Department of Fish and Wildlife

The Decline of Herring at Cherry Point, Washington

Mary Sue Brancato, Olympic Coast Marine Sanctuary

An Integrated Molecular Biomarker System to Assess and

Compare the Health of Aquatic Life in Washington State Waters

Jim Ebbert, U.S. Geological Survey

Summary of Major Findings from the U.S. Geological

Survey National Water-Quality Assessment Program in the

Puget Sound Basin

Melinda Fohn, City of Bremerton

Watershed Benefits of Environmental Monitoring

Performed by a Medium-Sized City

Robert Johnston, Marine Environmental Support Office -NW

A Watershed-Based Ecological Risk Assessment of Sinclair

Inlet, Washington, USA

Linda Nichol, British Columbia Ministry of

Environment, Lands and Parks

Environmental Trends in the Georgia Basin

Elissa Ostergaard, University of Washington

Patterns of Amphibian Use of Stormwater Ponds in King County

Sandra Salazar, Applied Biomonitoring

Puget Sound Mussel Watch-A Proposal for Integrated

Biomonitoring

Group B: Rivers, Streams and Watersheds

Rebecca Kershner, U.S. Geological Survey

CEE-TV: Contaminant Exposure and Effects-Terrestrial

Vertebrates Database

Chris Davis, CommEn Space

An Approach to Basin-Wide Impervious Area

Measurement for Chinook Habitat Restoration

Linda Newberry, Jamestown S'Klallam Tribe

Salmon in the Dungeness: How a Newspaper Insert was

Developed as a Watershed Education Tool

Beverly Raymond, Environment Canada

Analysis of Atmospheric Source Contaminants in Biota of

the North Shore Forested Watershed of the Lower

Mainland: A Pilot Study

Dean Wilson, King County Department of Natural Resources

Small Streams Toxicity/Pesticide Study

Grant Logsdon, University of Washington

A Spatial Database for Big Beef Creek, Washington

Michael MacKay, Lummi Natural Resources Department

Use of a Rotary Screwtrap to Monitor the Out-migration of

Salmon Smolts from the Nooksack River: 1994-2000

Group C: Marine Birds and Mammals

Joseph Evenson, Washington State

Department of Fish and Wildlife

Pigeon Guillemot Breeding Colony Status for the Inland

Marine Waters of Washington State, As Captured by PSAMP

Efforts 1999-2000

Susan Grant, Institute of Ocean Sciences,

Fisheries and Oceans Canada

Regional Sources of Toxic Chemicals in the Killer Whale

(*Orcinus orca*) Food Chain: A Review

Nathalie Hamel, University of Washington

Common Murres in Puget Sound: Ecological Correlates

and Conservation Implications

Glen Jamieson, Fisheries and Oceans Canada

Salmon Farm-Pinniped Interactions in British Columbia:

An Analysis of Predator Control, Its Justification and

Alternative Approaches

SPONSORS

OVERVIEW

MONDAY

TUESDAY

WEDNESDAY

POSTERS

- Steven Jeffries, Washington State Department of Fish and Wildlife**
 Status and Trends in Harbor Seals (*Phoca vitulina richardsi*) in Washington State 1978-2000
- Rikk Kvitek, California State University Monterey Bay**
 Changes in Sea Otter Benthic Prey and Algal Communities of the Olympic Coast National Marine Sanctuary During 12 Years of Rapid Sea Otter Range Expansion
- Kristin Laidre, University of Washington**
 Carrying Capacity Estimates for the Washington State Sea Otter (*Enhydra lutris kenyoni*) Population
- Dyanna Lambourn, Washington State Department of Fish and Wildlife**
 Evidence of *Brucella* sp. in Pacific Harbor Seals (*Phoca vitulina richardsii*) and California Sea Lions (*Zalophus californianus*) from Washington
- Monique Lance, Washington State Department of Fish and Wildlife**
 Diet of Harbor Seals in Hood Canal During 1998 and 1999
- Josh London, University of Washington**
 Foraging Ecology of Harbor Seals in Hood Canal and the Potential Impacts on Threatened Summer Chum Stocks
- David Nysewander, Washington State Department of Fish and Wildlife**
 Status and Trends for a Suite of Key Diving Marine Bird Species Characteristic of Greater Puget Sound, As Examined by the Marine Bird Component, Puget Sound Ambient Monitoring Program (PSAMP)
- Chris Thompson, Washington State Department of Fish and Wildlife**
 Summer and Winter Distribution and Abundance of Seabirds in Washington, 1996-2000

Group D: Toxic Contaminants

- Marta Assunção, Institute of Ocean Sciences, Fisheries and Oceans Canada**
 Cytochrome P450 1A Enzymes as Non-invasive Biomarkers of Contaminant Exposure in Skin from Harbour Seals (*Phoca vitulina*)
- Donna Cullon, Institute of Ocean Sciences, Fisheries and Oceans Canada**
 An Ecosystem Approach to Assessing the Accumulation of Persistent Organic Pollutants (POPs) in the Food Chain of Harbour Seals (*Phoca vitulina*) Inhabiting the Coastal Waters of British Columbia and Washington
- Tad Deshler, Windward Environmental LLC**
 A Multivariate Statistical Approach to Characterizing Impacts from Combined Sewer Overflows Using Regional Chemistry Data
- Daniel Lomax, National Oceanic and Atmospheric Administration**
 Should We Be Concerned About Estrogenic Compounds in Puget Sound Waterways? Adult Male English Sole Collected Near Urban Areas May Provide the Answer
- Kelsey Miller, University of British Columbia**
 The Liver Cytochrome P450 Enzyme System: A Biomarker of Contaminant Exposure in English Sole and Harbour Seals in Southern British Columbia
- Lizzy Mos, Institute of Ocean Sciences, Fisheries and Oceans Canada**
 Vitamin A as a Biomarker of Contaminant Toxicity in Harbour Seals
- Sandra O'Neill, Washington State Department of Fish and Wildlife**
 Temporal Trends in Toxicopathic Hepatic Lesion Occurrence in English Sole (*Pleuronectes vetulus*) from Puget Sound, Washington: Results of the Puget Sound Ambient Monitoring Program; 1989-1999
- Bruce Rummel, Taylor Associates**
 The Application of the SEDCAM Sediment Attenuation Model to Nonpolar Organic Compounds

Group E: Contaminated Sediments

- Greg Baker, National Oceanic and Atmospheric Administration**
Using GIS to Evaluate Sediment Contamination Impacting
Duwamish Estuary Habitats
- Brad Davidson, U.S. Navy SPAWAR System Center**
Sediment Flux Assessment in Sinclair and Dyes Inlet
- Maggie Dutch, Washington State Department of Ecology**
Survey of Sediment Quality in Puget Sound, 1997-1999—
The “Sediment Quality Triad” Synthesis
- Maggie Dutch, Washington State Department of Ecology**
Survey of Sediment Quality in Puget Sound, 1997-1999—
Chemical Contamination
- Maggie Dutch, Washington State Department of Ecology**
Survey of Sediment Quality in Puget Sound,
1997-1999: Toxicity
- Lyndal Johnson, Northwest Fisheries Science Center,
National Marine Fisheries Service**
An Analysis in Support of Sediment Quality Thresholds for
Polycyclic Aromatic Hydrocarbons (PAHs) to Protect
Estuarine Fish
- Deb Lester, King County Department of Natural Resources**
Sediment Quality Evaluation in an Urban Lake- Lake
Sammamish, Washington
- Mark Myers, National Oceanic and Atmospheric Administration**
Biomarker and Histopathologic Responses in Flatfish
Following Site Remediation in Eagle Harbor, Washington

Group F: Marine Waters

- Julia Bos, Washington State Department of Ecology**
Assessing Sensitivity to Eutrophication of the Southern
Puget Sound Basin: Spatial and Seasonal Perspectives
- Michael Cochran, Northwest Indian College**
Dairy Waste Impacts on Tribal Shellfish:
The Cow-to-Clam Connection
- Tim Determan, Washington State Department of Health**
Spatial and Temporal Patterns of Paralytic Shellfish
Poisoning Toxin in Puget Sound
- Dan Huisjen, University of Washington**
Oceanographic Survey of Commencement Bay,
Washington - Spring 2000
- Mitsuhiro Kawase, University of Washington**
Seasonal Cycle of Deep Water Properties in Puget Sound,
Their Interannual Variability, and Sensitivity to Climatic
Factors
- Scott Mickelson, King County
Department of Natural Resources**
Spatial and Temporal Variations of Conventional Water
Quality Parameters in Marine Waters of the Central Puget
Sound Basin
- Scott Mickelson, King County
Department of Natural Resources**
Characterization of Trace Metal Concentrations in Marine
Waters of the Central Puget Sound Basin
- Greg Pelletier, Washington State Department of Ecology**
A Three-dimensional Water Quality Model of Southern
Puget Sound
- Rick Reynolds, Washington State Department of Ecology**
Characterization of Light Absorption by Particulate and
Dissolved Substances Within Puget Sound
- Thomas Smayda, Smayda Environmental Associates, Inc.**
Water Circulation and Fecal Coliform Budget of Dungeness
Bay, Washington

SPONSORS

OVERVIEW

MONDAY

TUESDAY

WEDNESDAY

POSTERS

Group G: Marine Biology

- Roland Anderson, The Seattle Aquarium**
The Burying Behavior of the Sepiolid Squid *Rossia pacifica*
- Michael Kyte, Golder Associates, Inc.**
Where Have All the Sea Pens Gone? Or Vacant Benthic Habitats
- Andrea Olah, Western Washington University**
Effects of Ultraviolet Radiation on Distribution of the Solitary Ascidian *Ciona savignyi*
- Daniel Penttila, Washington State Department of Fish and Wildlife**
The Pacific Sand Lance, *Ammodytes hexapterus*, in Puget Sound
- David Powell, Profishnet, Inc.**
Immunocompetence of Juvenile Chinook Salmon as a Function of Fish Size and Exposure to Dietary Polychlorinated Biphenyls (PCBs)
- Ladd Rutherford, The Evergreen State College**
An Ecophysiological Study of the Effects of Hypoxia and Anoxia on Gelatinous Zooplankton of Southern Puget Sound
- Heather Stout, Northwest Fisheries Science Center, National Marine Fisheries Service**
The Determination of Distinct Population Segments and Risk of Extinction for Puget Sound Populations of Pacific Herring and Brown, Quillback and Copper Rockfish through the Biological Review Team Process
- Shannon Tribble, University of Washington**
Visual Development in Pacific Sand Lance, *Ammodytes hexapterus*

Group H: Nearshore Ecology

- Ann Boeholt, Washington State Department of Ecology**
The Role of Salinity in Structuring the Aquatic Macroinvertebrate Community of a Puget Sound Oligohaline Lagoon
- Amy Borde, Battelle Marine Sciences Laboratory**
Eelgrass in Captivity: Population Dynamics in a Confined System
- Megan Dethier, University of Washington**
A Qualitative Comparison of Shoreline Biota in Central Puget Sound After 25 Years
- C. Eric Hellquist, Washington State University**
Seed Production of *Spartina anglica*, a Non-Native, Allopolyploid Cordgrass, Colonizing Intertidal Habitats of Puget Sound, Washington
- Claudia Mills, University of Washington**
Ongoing Invasion of the Asian Purple Varnish Clam *Nuttallia obscurata*, into Puget Sound Waters: Does Anyone Care?
- James Norris, Marine Resources Consultants**
Eelgrass Monitoring in Puget Sound: Methods and Preliminary Results of the Submerged Vegetation Monitoring Project
- John Southard, Battelle Marine Sciences Laboratory**
Fish Distribution in Submerged Shallow Water Habitats Using Underwater Videography in Puget Sound
- Glen Watabayashi, National Oceanic and Atmospheric Administration**
Statistical Trajectory Analysis of the Seeds of Common Cordgrass (*Spartina anglica*) in Northern Puget Sound

Group I: Conservation and Restoration

- Paul Dinnel, Skagit County Marine Resources Committee**
Preliminary Assessment of Marine Protected Areas for Rocky Reef Bottomfish in Skagit County, Washington
- Zach Ferdana, The Nature Conservancy**
Marine, Nearshore and Estuarine Conservation Targets for the Puget Trough/Georgia Basin Ecoregion

Perry Gayaldo, University of Washington

Transplantation and Alteration of Submarine Environment
for Restoration of *Zostera marina* (Eelgrass): A Case Study at
Curtis Wharf (Port of Anacortes), Washington

Jon Houghton, Pentec Environmental

Can Eelgrass Transplanting Work?- Two Small Victories for
the Grass

Nancy Malmgren, Carkeek Park Community Project

Value of Integrated Management Approach to
Sustainability as Demonstrated in Carkeek Park and the
Pipers Creek Watershed

Sunita Nanda, University of Washington

Sustainable Design for the Urban Coastline: A Case Study

Mike Sato, People for Puget Sound

The Orcas Pass International Stewardship Area: Hands
Across the Border

Kimberle Stark, King County**Department of Natural Resources**

A Nearshore Substrate Enhancement Project in Elliott Bay,
Washington

Group J: Marine Resources**Allison Bailey, Oceanic and Atmospheric Administration**

Virtual Transects: A Novel Technique for Assessing the
Linear Extent of Floating Kelp Beds in Washington State

Walter Barnhardt, U.S. Geological Survey

Geologic Mapping of Marine Benthic Habitats at Puget
Sound, Washington

Betty Bookheim, Washington State**Department of Natural Resources**

An Inventory of Washington State's Marine Shorelines
Using the ShoreZone Mapping System

David Finlayson, University of Washington

Building a Seamless Digital Elevation Model of the Puget
Sound Basin

Robert Goodwin, Washington Sea Grant Program

The Shoreline/Coastal Planners Group: Linking Science to
Puget Sound Shorelines Management

John Harper, Coastal and Ocean Resources

Examples of Applications of ShoreZone Mapping Data
from the State of Washington

Mark Holmes, University of Washington

Submarine Landslides in Northern Puget Sound: Magnetic
Susceptibility Analysis of Piston Cores Collected Near
Edmonds, Washington

Orlay Johnson, National Marine Fisheries Service

Status Review of Chum Salmon for ESA Listing in Puget Sound

Robert Kayen, U.S. Geological Survey

Potential Impacts of Cascadia-Margin Earthquakes on the
Fraser (Vancouver) and Duwamish Deltas (Seattle)

Michael Kyte, Golder Associates, Inc.

A Wide Area Rapid Assessment Technique for Benthic
Habitats

Wayne Palsson, Washington State**Department of Fish and Wildlife**

Trends and Distribution of Marine Debris in Puget Sound:
What's Thrown In, Stays There

Richard Patrick

Pen-raised Fish Attract Orca Whales: An Hypothesis
Concerning an Extended Stay of Orca Whales in Dyes Inlet
in 1997

Brice Semmens, University of Washington

REEF - A Volunteer Fish Monitoring Program in the Pacific
Northwest

© 2015 Pearson Education, Inc. or its affiliate(s). All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage or retrieval system, without prior written permission from the publisher.

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

*Seattle Public Utilities
is committed to the
consistent delivery of
high-quality water,
solid waste, sewer and
drainage services
through the careful
stewardship of our
natural resources.*

Seattle
 Public
Utilities

www.ci.seattle.wa.us/util

**NEARSHORE HABITAT
ASSESSMENT TECHNIQUE**
A Wide Area Rapid Assessment
Technique for Benthic Habitats



**Golder
Associates**

An integrated, cost-effective application of existing technology useful for:

- Long-term monitoring of mitigation projects, impacts, & natural variation
- Mapping forage fish habitat (eelgrass beds, sediment types)
- Mapping salmonid critical habitat (eelgrass beds)
- Mapping bottom fish (rockfish, cod, hake, etc.) habitat (rocky reefs, gravel or mud bottoms)
- Selecting least-impact routes & sites for cables, outfalls, & other structures

Contact: Keith Wolf or Michael Kyte 425.883.0777

Washington's Ports

Partners in protecting and
restoring the Puget Sound
and Georgia Basin
ecosystems



www.washingtonports.org

(360) 943-0760

OLYMPIC COAST NATIONAL MARINE SANCTUARY



[HTTP://OCNMS.NOS.NOAA.GOV](http://OCNMS.NOS.NOAA.GOV)

Teaming For Action



Boeing is proud to be a sponsor of the

2001 Puget Sound Research Conference

Bringing people together for knowledge and cooperation



**Taylor
Shellfish
Farms**

Partnering
to maintain
and restore
clean water.

Taylor Shellfish Company, Inc.
Shelton, Washington
(360) 426-6178
www.taylorshellfish.com



30 YEARS
AS A SEA GRANT
COLLEGE
1971-2001
WASHINGTON
SEA GRANT
PROGRAM
UNIVERSITY OF
WASHINGTON

*"Knowledge for Use in the
Marine Environment"*



WASHINGTON STATE DEPARTMENT OF
Natural Resources



U.S. Environmental Protection Agency

Region 10
1200 Sixth Avenue
Seattle, Washington 98101

1-800-424-4372
www.epa.gov/r10earth



Enhancing Your Quality of Life

- ◆ **Inaugurating first-of-its-kind sewer loan program—** Tacoma granted more than 50 residential and commercial low-interest loans since starting its sewer loan program in spring 1999.
- ◆ **Turning kids "green" with the EnviroChallenger—** Tacoma takes environmental education into the classroom so elementary students can learn about local environmental issues.
- ◆ **Restoring five Commencement Bay area sites—** Tacoma's work on five project sites will restore nearly 40 acres of habitat that has been degraded by decades of industrialization and urbanization.
- ◆ **Reusing and Recycling 90 percent of Tacoma's solid waste—** Tacoma is on track to reuse and recycle more than 90 percent of its solid waste within the next two years.



Wastewater
Management



Surface Water
Management



Solid Waste
Management